

**ROUTE CONCEPT REPORT  
STATE ROUTE 94**

**11-SD-94 P.M. S.D. 1.4 - 65.4**

**JANUARY 1991**

**State of California  
Department of Transportation  
District 11 - System Planning Branch  
2829 Juan Street  
P. O. Box 85406  
San Diego, CA 92138-5406**

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**TRANSPORTATION CONCEPT SUMMARY**  
**STATE ROUTE 94**  
**11-SD-94 P.M. S.D. 1.4 - 65.4**

**ROUTE CONCEPT (2010)**

The components of the route concept include State highway, arterial street, and transit improvements. The State highway components are listed in Table S- 1, while the others are discussed in the Concept Rationale section. The State highway components comprise the facility type and the number of lanes for 2010, the Average Daily Traffic (ADT) for 2010, the Demand Capacity (D/C) Ratio for 2010, the 2010 Operating Level of Service (LOS), the 2010 Concept LOS, whether the segment is currently a rural or urban area and the post-2010 Ultimate Transportation Corridor (UTC). The 2010 Operating LOS for State Route 94 (SR-94) is based on regional traffic forecasts which indicate full buildout of the transportation system and assume completion of all proposed State highway improvements. The forecast incorporates a vehicle occupancy rate of 1.5 persons per vehicle, an increase of 30 percent from the existing 1.15 rate. This translates into a higher number of person trips within the corridor with fewer added vehicle trips. The 2010 Concept LOS includes all proposed State highway improvements. The Operating LOS is based on an eight lane freeway in Segments 1 through 5 and a six lane freeway in Segment 6 and does not take into account the proposed High Occupancy Vehicle (HOV) Study for these segments. The UTC describes the long term corridor preservation measures that may be needed to accommodate traffic growth. Included in Table S- 1 is the number of lanes, the facility type and the minimum right of way width in feet for the UTC for SR-94. The Route Concept LOS also includes expansion and greater utilization of the existing arterial street network and provision of expanded transit service in the SR-94 corridor. The multimodal components of the Concept include these arterial street improvements and implementation of this expanded transit service. The 2010 Concept LOS is better than the 2010 Operating LOS because it includes all the aforementioned multimodal components and is consistent with the provisions of the Congestion Management Program (CMP). It also includes full implementation of the Transportation System Management (TSM) and Transportation Demand Management (TDM) improvements.

**TABLE S-1  
2010 ROUTE CONCEPT**

SEGMENT/ COUNTY POST MILE	LOCATION	NO. LANES/ FACILITY TYPE	ADT	D/C RATIO	OPERATING LOS	CONCEPT LOS	U/R	UTC
1 SD 1.4 - 3.2	I-5 to I-15	8F*	175,000	1.45	F2	F0	U	None
2 SD 3.2 - 4.1	I-15 to I-805	8F*	191,000	1.55	F3	F0	U	None
3 SD 4.1 - 6.2	I-805 to Federal Boulevard	8F**	188,000	1.35	F1	F0	U	None
4 SD 6.2 - 9.8	Federal Boulevard to west junction SR-125	8F**	159,000	1.30	F1	F0	U	None
5 SD 9.8 - T10.1	West junction SR-125 to east junction SR-125	8F+connectors*	227,000	1.27	F1	F0	U	None
6 SD T10.1 - R13.3	East junction SR-125 to Avocado Boulevard	6F*	106,000	1.23	F0	F0	U	None
7 SD R13.3 - 14.3	Avocado Boulevard to SR-54	6F	68,000	0.81	D	D	U	None
8 SD 14.3 - 14.9	SR-54 to urban/rural limit	4F***	48,000	0.87	D	D	U	None
9 SD 14.9 - 19.8	Urban/rural limit to Proctor Valley Road	6C	41,000	0.82	D	D	R	6C/172
10 SD 19.8 - 24.8	Proctor Valley Road to Otay Lakes Road	4C	24,000	0.74	D	D	R	6C/172
11 SD 24.8 - 39.0	Otay Lakes Road to SR-188	2C	6,500	0.62	C	D	R	4C/148
12 SD 39.0 - 65.4	SR-188 to I-8	2C	3,500	0.33	B	D	R	4C/148

2C = Two lane conventional highway  
 4C = Four lane conventional highway  
 6C = Six lane conventional highway  
 4F = Four lane freeway  
 6F = Six lane freeway  
 8F = Eight lane freeway  
 ADT = Average Daily Traffic  
 D/C = Demand to Capacity  
 HOV = High Occupancy Vehicle  
 LOS = Level of Service  
 R = Rural  
 U = Urban  
 UTC = Ultimate Transportation Corridor

\* Study the addition of two HOV lanes.

\*\* Study the addition of two HOV or two mixed flow lanes.

\*\*\* Proposed freeway extends beyond urban/rural limit to Millar Ranch Road (P.M. SD 15.5).

Note: All widths are in feet.

## CONCEPT RATIONALE

The concept for the SR-94 corridor is a multi-modal strategy which includes three components: improvements to the State highway system; improvements to the regional arterial system; and, transit service improvements. Additional strategies that will help to attain the concept include TDM, TSM and air quality improvement tactics.

The State highway component of the Concept is to provide mainlane facility improvements in Segments 6 through 10 where needed if sufficient right of way is available and where it can be accomplished at a reasonable cost. The Concept also includes a study of the feasibility of construction HOV lanes between Interstate 5 (I-5) and Avocado Boulevard. Additionally, operational improvements such as auxiliary lanes and ramp metering should also be provided where necessary to help achieve the 2010 Concept LOS. Safety improvements should also be implemented as needed throughout the route.

Another component of the Concept for Segments 1 through 9, is greater utilization and expansion of the existing arterial street network in the corridor. Improvements to the arterial system in the corridor are also included in the Concept. These improvements are expected to substantially increase corridor mobility and reduce peak period

demands on the freeway. They can provide a route for short intraregional trips where existing arterials are inadequate or not present and act as an alternative route for some regional trips. Capacity of existing arterials within the corridor is affected by physical inadequacies, access conflicts, numerous traffic signals, and general traffic congestion. Corridor capacity can be increased by realignment and/or widening, correcting physical inadequacies, minimizing side friction, and improving the traffic flows of arterials within the corridor. Improvements towards these ends include preferential signal treatment, limitation and separation of left-turn movements, limited driveway and other access controls, and HOV lanes for ridesharing and transit.

For Segments 1 through 5, another component of the Concept includes enhanced transit and expansion of light rail service. Expansion of the light rail includes full double tracking of the existing East Urban Light Rail Transit (LRT) line, allowing for increased headway's and ridership. Daily ridership is expected to rise to 25,000 by the year 2000.

TSM improvements are expected to optimize traffic flow on the existing transportation systems within the SR-94 corridor. Specifically, ramp meters will be installed within Segments 3 through 5 on SR-94. HOV bypass lanes will be provided on appropriate ramp where feasible to encourage carpooling.

Another TSM improvement that should be utilized in the SR-94 corridor is the provision of traffic signal coordination improvements on parallel arterial streets. Signal timing and phasing should be modified in order to enhance vehicular flow and maximize capacity of the arterials.

TDM improvements are intended to reduce travel demand during peak period traffic hours. TDM incorporates a variety of components including ridesharing, staggered work hours, parking management, developer and employer incentives, and implementation of ordinances. Specifically, the average number of persons in each vehicle bound for the work place is currently about 1.15. This should be increased to a 1.5 person per car rate by 2010. Additionally, the current peak period drive-alone rate is about 80 percent. This should be decreased to about 40 percent by 2010.

A downtown San Diego Transportation Management Association (TMA) has been formed to coordinate the implementation of TDM improvements with the SR-94 corridor.

Air quality improvements will be achieved primarily by the implementation of ridesharing, transit, bicycle, and traffic flow improvements. Specific Transportation Control Measures (TCMs) will be developed by the San Diego Association of Governments (SANDAG) for inclusion in the new air quality plan being developed by the Air Pollution Control District (APCD). Potential TCM's include, but are not limited to, the use of peak hour congestion pricing, toll facilities, gasoline rationing, auto-restricted access zones, off-road idling restrictions [e.g., waiting in line at drive-through restaurants and Automatic Teller Machines (ATM) machines], and strict County vehicular emissions standards.

TSM, TDM and air quality improvements tend to overlap and work synergistically. The total effect of these improvements will assist in alleviating traffic congestion and will result in an increased number of person trips within the SR-94 corridor.

## EXISTING (1988) AND FUTURE (2010 NO BUILD) DEFICIENCIES

Table S-2 shows present and future (2010 No Build) operating conditions for SR-94 for the purpose of highlighting deficient segments. Present conditions reflect 1988 data. Future conditions assume completion of no projects other than those in the 1990 State Transportation Improvement Program (STIP). Table S-2 does not include improvements listed in the 10 year TSM plan or those included in the Transnet program (the local sales tax funded transportation program). Concerns include either deficient Operating LOS and/or where actual accident rates exceed the expected rates on similar facilities by one and one-half times.

**TABLE S-2  
EXISTING AND FUTURE DEFICIENCIES**

SEGMENT/ COUNTY POST MILE	NO. LANES/ FACILITY TYPE	ADT	D/C RATIO	OPERATING LOS	CONCERN
<b>Current (1988)</b>					
1 SD 1.4 - 3.2	8F	132,000	1.22	F0	Deficient LOS F0/Accidents
2 SD 3.2 - 4.1	8F	144,000	1.33	F1	Deficient LOS F1/Accidents
3 SD 4.1 - 6.2	8F	181,000	1.45	F2	Operating at deficient LOS F2
4 SD 6.2 - 9.8	8F	138,000	1.26	F0	Operating at deficient LOS F0
5 SD 9.8 - T10.1	8F	126,000	1.14	F0	Operating at deficient LOS F0
6 SD T10.1 - R13.3	4F	54,000	1.24	F0	Operating at deficient LOS F0
7 SD R13.3 - 14.3	4E	28,000	1.28	F1	Operating at deficient LOS F1
8 SD 14.3 - 14.9	4C	30,000	1.39	F	Operating at deficient LOS F
9 SD 14.9 - 19.8	2C	12,000	0.97	E	Operating at deficient LOS E
10 SD 19.8 - 24.8	2C	7,000	0.52	C	Not deficient
11 SD 24.8 - 39.0	2C	2,900	0.28	B	Not deficient
12 SD 39.0 - 65.4	2C	1,400	0.13	B	Not deficient
<b>Future (Post 2010-1990 STIP No Build)</b>					
1 SD 1.4 - 3.2	8F	163,000	1.37	F2	Operating at deficient LOS F2
2 SD 3.2 - 4.1	8F	188,000	1.53	F3	Operating at deficient LOS F3
3 SD 4.1 - 6.2	8F	231,000	1.59	F3	Operating at deficient LOS F3
4 SD 6.2 - 9.8	8F	184,000	1.46	F3	Operating at deficient LOS F3
5 SD 9.8 - T10.1	8F	175,000	1.79	F3	Operating at deficient LOS F3
6 SD T10.1 - R13.3	4F	76,000	1.32	F2	Operating at deficient LOS F2
7 SD R13.3 - 14.3	4E	59,000	1.50	F3	Operating at deficient LOS F3
8 SD 14.3 - 14.9	4C	57,000	1.71	F	Operating at deficient LOS F
9 SD 14.9 - 19.8	2C	27,000	1.54	F	Operating at deficient LOS F
10 SD 19.8 - 24.8	2C	18,000	1.08	F	Operating at deficient LOS F
11 SD 24.8 - 39.0	2C	6,500	0.62	C	Not deficient
12 SD 39.0 - 65.4	2C	3,500	0.33	B	Not deficient

2C = Two lane conventional highway

4C = Four lane conventional highway

4E = Four lane expressway

4F = Four lane freeway

8F = Eight lane freeway

ADT = Average Daily Traffic

D/C = Demand to Capacity

LOS = Level of Service

STIP = State Transportation Improvement Program

Table S-3 shows mainlane facility improvements to SR-94 that are proposed to approach or attain the Route Concept. The D/C ratio and Operating LOS listed assume completion of the proposed mainlane facility

**TABLE S-3  
IMPROVEMENTS NECESSARY TO ATTAIN ROUTE CONCEPT**

SEGMENT/ COUNTY POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	D/C RATIO	OPERATING LOS	CONCEPT LOS
5 SD 9.8 - T10.1	West junction SR-125 to east junction SR-125	Add connectors	1.27	F1	F0
6 SD T10.1 - R13.3	East junction SR-125 to Avocado Boulevard	Upgrade from 4F to 6F*	1.23	F0	F0
7 SD R13.3 - 14.3	Avocado Boulevard to SR-54	Construct 6F	0.81	D	D
8 SD 14.3 - 14.9	SR-54 to urban/rural limit	Construct 4F**	0.87	D	D
9 SD 14.9 - 19.8	Urban/rural limit to Proctor Valley Road	Upgrade from 2C to 6C	0.82	D	D
10 SD 19.8 - 24.8	Proctor Valley Road to Otay Lakes Road	Upgrade from 2C to 4C	0.74	D	D

2C = Two lane conventional highway

4C = Four lane conventional highway

4F = Four lane freeway

6F = Six lane freeway

D/C = Demand to Capacity

HOV = High Occupancy Vehicle

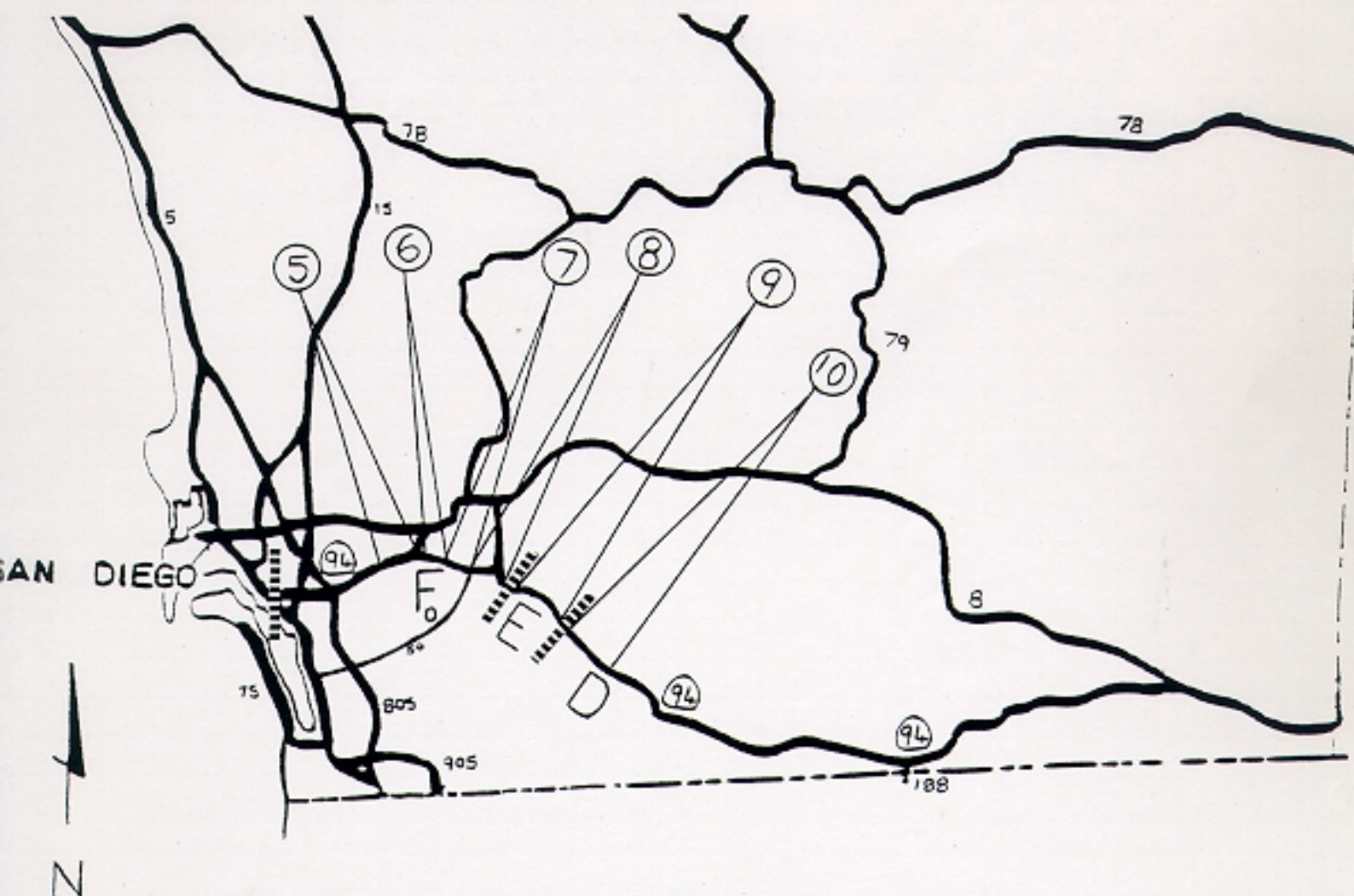
LOS = Level of Service

\* Study the addition of two HOV lanes.

\*\* Proposed freeway extends beyond the urban/rural limit to Millar Ranch Road (P.M. SD 15.5).



# DISTRICT 11 ROUTE CONCEPT REPORT MAP STATE ROUTE 94



Improvements Necessary to Attain Route Concept

Segment	County/Post-Mile	Location	Improvement Description	D/C	Op. LOS
5	SD 9.8-110.1	MSR 125 to ESR 125	Add Connectors	1.27	F <sub>1</sub>
6	SD 110.1-113.3	ESR 125 to Avocado Boulevard	Upgrade from 4F to 6F*	1.23	F <sub>0</sub>
7	SD 113.3- 14.3	Avocado Boulevard to SR 54	Construct 6F	.81	0
8	SD 14.3- 14.9	SR 54 to Urban/Rural Limit	Construct 4F**	.87	0
9	SD 14.9- 19.8	U/R Limit to Proctor Valley Road	Upgrade from 2C to 6C	.82	0
10	SD 19.8- 24.3	Proctor Valley to Otay Lakes Rd.	Upgrade from 2C to 4C	.74	0

\* Study the addition of two HOV lanes

\*\* Proposed freeway extends beyond U/R Limit to Millar Ranch Road (PM SD 15.5)

**ROUTE CONCEPT REPORT**  
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**11-SD-94 P.M. SD 1.4 - 65.4**

**INTRODUCTION AND STATEMENT OF PLANNING INTENT**

The system planning process consists of three products: the District System Management Plan (DSMP), the Route Development Plan (RDP), and the Route Concept Reports (RCRs).

The DSMP describes how the District intends to manage and improve the District transportation system over the next 20 years. It integrates land use, modal opportunities, regional arterial plans, Transportation System Management (TSM), Transportation Demand Management (TDM) strategies, State and local policies, highway system improvements, and the District highway network into a comprehensive transportation program. The DSMP serves as the foundation for the RDP and the RCRs.

The RDP identifies 12 year future Level of Service (LOS) capacity deficiencies and proposes improvements that would be potential candidates for inclusion in the Districts' project candidate list and for further analysis and inclusion into a future State Transportation Improvement Program (STIP). The RDP also provides the basis for Project Study Reports (PSRs). Improvements are based on various alternative funding scenarios.

The RCR is a planning document which describes the Department's basic approach to the development of a given route. Considering reasonable financial constraints and projected travel demand over a 20 year planning period, the RCR defines an appropriate type of facility and LOS for the route.

RCRs are a preliminary planning phase that lead to subsequent programming and the project development process. As such, the specific proposed nature of improvements (i.e., number of lanes, access control, etc.) may change in later project development stages, with final determinations made during the project report and design phases.

Each Route Concept must be viewed as an integral part of a planned system. The Route Concepts are based on the completion of the 20 year system. The system has been developed to meet anticipated travel demand generated from regional growth forecasts. Removal of any portion of a route from the system will adversely affect travel on parallel or intersecting routes.

RCRs are prepared by Caltrans District staff in cooperation with local and regional agencies. They will be updated as necessary as conditions change or new information is obtained.

## **ROUTE DESCRIPTION**

The western terminus of State Route 94 (SR-94) is in San Diego at the junction with Interstate 5 (I-5), (P.M. SD 1.4). Originally, the one way couplet (F & G Streets) in the downtown San Diego area, from P.M. SD 0.0 - 1.4, was included as part of SR-94 but was relinquished to the City of San Diego. SR-94 extends 63.4 miles east to the junction with Interstate 8 (I-8) near Boulevard (P.M. SD 65.4).

SR-94 was added to the State Highway System as Route 200 in 1933. The portion from I-5 (P.M. SD 1.4) to State Route 54 (SR-54) near Jamacha Boulevard (P.M. SD 14.1) was added to the Freeway and Expressway (F&E) System in 1959.

### **Purpose of Route**

SR-94 is a principal east-west route which carries interregional, intraregional and, to a lesser extent, international travel. The western portion of the route (P.M. SD 1.4 - 14.9) serves as a major commuter route. The remainder of the route serves outlying rural communities located in the southeastern portion of San Diego County. It also provides access to State Route 188 (SR-188) (P.M. SD 38.1) which allows for vehicular travel to the International Border at Tecate, Mexico. SR-94 traverses the Cities of San Diego, Lemon Grove, and La Mesa, and the communities of Spring Valley, Casa De Oro, Rancho San Diego, Jamul, and other small rural communities to the east. SR-94 intersects most of the major north-south metropolitan routes, including I-5, Interstate 15 (I-15), Interstate 805 (I-805), State Route 125 (SR-125), and SR-54. State routes parallel to SR-94 include I-8 and a portion of SR-54.

### **Existing Facility Classifications**

SR-94 has a functional classification of Principal Arterial (PA) from I-5 (P.M. SD 1.4) to the urban/rural limit (P.M. SD 14.9). From the urban/rural limit (P.M. SD 14.9) to I-8 (P.M. SD 65.4), SR-94 is functionally classified as a Minor Arterial (MA) entirely within a rural area

SR-94 is a part of the Federal Aid Urban (FAU) road system from I-5 (P.M. SD 1.4) to Grove Street (P.M. SD 9.3). From Grove Street (P.M. SD 9.3) to the junction of I-8 (P.M. SD 65.4), SR-94 is part of the Federal Aid Primary (FAP) road system.

SR-94 is not included as a part of the Interregional Road System (IRRS).

From I-5 (P.M. SD 1.4) to the east junction of SR-125 (P.M. SD T10.1), SR-94 is designated as part of the national network for Surface Transportation Assistance Act (STAA) trucks. The portion of SR-94 from the east junction of SR-125 (P.M. SD T10.1) to Otay Lakes Road (P.M. SD 24.8) is designated as a State Highway Terminal Access Route. In addition, the portion of SR-94 from near Campo Creek (P.M. SD 59.6) to the junction of I-8 (P.M. SD 65.4) is also designated as a State Highway Terminal Access Route.

In accordance with the Truck Kingpin-to-Rear Axle Length State Highway System

Evaluation Report dated December 1989, the portion of SR-94 from Otay Lakes Road (P.M. SD 24.7) to Tierra Del Sol Road (P.M. SD 63.2) has been identified as geometrically inadequate for use by truck tractor-semitrailer combinations having a 40 foot kingpin-to-rear axle length.

The portion of SR-94 from the east junction of SR-125 (P.M. SD T10.1) to the junction of I-8 (P.M. SD 65.4) is on the California State Scenic Highway System and is eligible to be designated as an official State Scenic Highway.

SR-94 is classified as a Maintenance Service Level (MSL) 3 route from Campo (P.M. SD 50.6) to its eastern terminus at I-8 (P.M. SD 65.4).

## Route Segments

SR-94 is examined in 12 segments for traffic analysis and other purposes. Table 1 lists the segments and includes some of the information used as criteria for segment divisions.

**TABLE 1  
ROUTE SEGMENTATION**

SEGMENT/ COUNTY POST MILE	LOCATION	EXISTING NO. LANES/ FACILITY TYPE	URBAN/ RURAL	FUNCTIONAL CLASSIFICATION
1 SD 1.4 - 3.2	I-5 to I-15	8F	U	P3
2 SD 3.2 - 4.1	I-15 to I-805	8F	U	P3
3 SD 4.1 - 6.2	I-805 to Federal Boulevard	8F	U	P3
4 SD 6.2 - 9.8	Federal Boulevard to west junction SR-125	8F	U	P3
5 SD 9.8 - T10.1	West junction SR-125 to east junction SR-125	8F	U	P3
6 SD T10.1 - R13.3	East junction SR-125 to Avocado Boulevard	4F	U	P1M
7 SD R13.3 - 14.3	Avocado Boulevard to SR-54	4C	U	P1M
8 SD 14.3 - 14.9	SR-54 to urban/rural limit	4C	U	P1M
9 SD 14.9 - 19.8	Urban/rural limit to Proctor Valley Road	2C	R	MA
10 SD 19.8 - 24.8	Proctor Valley Road to Otay Lakes Road	2C	R	MA
11 SD 24.8 - 39.0	Otay Lakes Road to SR-188	2C	R	MA
12 SD 39.0 - 65.4	SR-188 to I-8	2C	R	MA

2C = Two lane conventional highway

4C = Four lane conventional highway

4F = Four lane freeway

8F = Eight lane freeway

MA = Minor Arterial

P1M = Extension of rural MA into urban area

P3 = Principal Arterial (PA) entirely within an urban area, with control

R = Rural

U = Urban

## Existing Facility

SR-94 is an eight lane freeway from I-5 (P.M. SD 1.4) to the east junction of SR-125 (P.M. SD T10.1). Auxiliary lanes are present at various locations throughout this portion

of the route and are exhibited in Table 4. SR-94 is a four lane freeway from the east junction of SR-125 (P.M. SD T10.1) to Avocado Boulevard (P.M. SD R13.3). From Avocado Boulevard (P.M. SD R13.3) to the junction of SR-54 (P.M. SD 14.3), SR-94 is a four lane expressway. The remainder of the route to I-8 (P.M. SD 65.4) is a two lane conventional rural highway. A physical description of the existing facility in a segment-specific format is shown in Table 3.

There are several major arterial streets paralleling SR-94 that could provide an alternative to commuters wishing to avoid peak hour congestion on the freeway. Listed in Table 2 are the major arterial streets that parallel SR-94 throughout the route. These streets have the potential to serve as alternative routes for commuters. However, these streets currently fail to provide an efficient alternative due to physical inadequacies, numerous traffic signals, access conflicts and general traffic congestion. Improvements will be required.

**TABLE 2  
PARALLEL ARTERIAL ROUTES**

<b>SEGMENT</b>	<b>ARTERIAL NAME</b>	<b>DESCRIPTION</b>
1 - 3	Market Street	I-5 to Imperial Avenue
1 - 4	Imperial Avenue	I-5 to Lemon Grove west city limits
5	Lemon Grove Avenue	Lemon Grove west city limits to SR-94
4 - 6	Broadway/Campo Road	College Avenue to Sweetwater Springs Boulevard

Ramp meters are currently in operation on SR-94 from I-5 (P.M. SD 1.4) to the east junction of SR-125 (P.M. SD T10.1), with the exception of the eastbound ramps located between Euclid Avenue (P.M. SD 5.1) and the east junction of SR-125 (P.M. SD T10.1). In addition, there are main lane meters at the east junction of SR-125 for westbound traffic. High Occupancy Vehicle (HOV) bypass lanes are provided in several of these locations.

There are seven Park and Ride lots near or adjacent to SR-94. They provide a total of 346 spaces for use by ridesharing commuters. Park and Ride lots are located at the following locations along SR-94.

1. College Grove Way at Lincoln Street (P.M. SD 7.8)
2. High Street at Lemon Grove Avenue (P.M. SD 9.0)
3. Lemon Grove Avenue at Lincoln Street (P.M. SD 9.0)
4. Troy/Sweetwater Road (P.M. SD 9.8)
5. Sweetwater Springs Boulevard (P.M. SD 12.8)
6. Avocado Boulevard (P.M. SD 13.3)
7. Potrero Post Office (P.M. SD 41.3)

Regarding existing light rail transportation, the San Diego Trolley East Urban Line (EUL) parallels SR-94 from I-5 (P.M. SD 1.4) to near Spring Street (P.M. SD 10.4) in La Mesa. The EUL provides daily service at regular intervals from approximately 5:00 a.m. to 2:00 a.m. Average daily patronage for the EUL currently averages over 14,000 passengers.

Existing Metropolitan Transit System (MTS) bus service consists primarily of Routes 40 and 70 which operate at 30 minute headways on SR-94 between I-5 (P.M. SD 1.4) and I-15 (P.M. SD 3.2). Total annual ridership for Route 40 is 76,000, while Route 70, a new route, is projected to carry 25,000 annually. San Diego County Transit System operates Route 856 six days a week at 30 minute peak period headway's on SR-94 between Avocado Boulevard (P.M. SD R13.3) and the junction with Jamacha Road (P.M. SD 14.9). Route 856 has an annual ridership of 113,000. Additionally, the San Diego County Rural Bus System operates Route 894 six days a week providing one inbound and one outbound trip per day. It travels on SR-94 between Avocado Boulevard (P.M. SD R13.3) and Live Oak Springs near I-8 (P.M. SD 65.4). There are also numerous transit routes providing service on the arterials adjacent to SR-94.

**TABLE 3  
EXISTING FACILITY**

SEGMENT/ COUNTY POST MILE	NO. LANES/ FACILITY & WIDTH	SHOULDER		MAXIMUM R/W WIDTH	MEDIAN WIDTH	GRADE LINE
		OUTSIDE WIDTH	INSIDE WIDTH			
1 SD 1.4 - 3.2	8F @ 12	8	5 - 10	200	20 - 99	F
2 SD 3.2 - 4.1	8F @ 12	8	8 - 10	200	22 - 99	F
3 SD 4.1 - 6.2	8F @ 12	8	6 - 8	200	17 - 22	R
4 SD 6.2 - 9.8	8F @ 12	8	5 - 8	200	22 - 46	F
5 SD 9.8 - T10.1	6F @ 12	8	5 - 8	200	22 - 46	R
6 SD T10.1 - R13.3	4F+1HOV @ 12*	8 - 10	5 - 8	200	62 - 99	R
7 SD R13.3 - 14.3	4E @ 12	6 - 8	5	60	14 - 24	R
8 SD 14.3 - 14.9	4C @ 12	6 - 10	0	60	0	R
9 SD 14.9 - 19.8	2C @ 12	6 - 10	0	60	0	R
10 SD 19.8 - 24.8	2C @ 12	5 - 8	0	60	0	M
11 SD 24.8 - 39.0	2C @ 9 - 12	2 - 8	0	60	0	R
12 SD 39.0 - 65.4	2C @ 9 - 12	2 - 8	0	60	0	R

2C = Two lane conventional highway

4C = Four lane conventional highway

4E = Four lane expressway

4F = Four lane freeway

6F = Six lane freeway

8F = Eight lane freeway

F = Flat

HOV = High Occupancy Vehicle

M = Moderate

R = Rolling

R/W = Right of Way

\* HOV lane in westbound direction from P.M. SD T10.1 - R11.1.

NOTE: All widths are in feet.

Table 4 describes the location and number of auxiliary lanes by direction for SR-94.

**TABLE 4  
EXISTING AUXILIARY LANES**

<b>COUNTY POST MILE</b>	<b>LOCATION</b>	<b>DIRECTION</b>	<b>NUMBER</b>
SD 1.4 - 1.8	I-5 to 25th Street	Westbound	1
SD 2.5 - 2.7	30th Street to 32nd Street	Westbound	1
SD 2.5 - 2.7	32nd Street to I-15	Eastbound	1
SD 2.7 - 3.2	32nd Street to I-15	Westbound	1
SD 3.6 - 4.1	Home Avenue to SR-94/I-805	Eastbound	1
SD 4.1 - 4.6	SR-94/I-805 to 47th Street	Westbound	1
SD 4.6 - 5.1	47th Street to Euclid Avenue	Eastbound	1
SD 4.6 - 5.1	47th Street to Euclid Avenue	Westbound	1
SD 5.1 - 5.9	Euclid Avenue to Kelton Road	Westbound	1
SD 5.9 - 6.1	Kelton Road to Federal Boulevard	Eastbound	1
SD T10.1 - R11.1	East junction SR-125 to Bancroft Drive	Westbound	1
SD R12.8 - R13.3	Sweetwater Springs Boulevard to Avocado Boulevard	Eastbound	1
SD R13.3 - T13.3	Sweetwater Springs Boulevard to Avocado Boulevard	Westbound	1

## **ROUTE ANALYSIS**

This section further discusses SR-94 present conditions and introduces future Post-1990 STIP/No Build conditions and deficiencies. This section also includes a land use and population analysis for existing and future conditions in the SR-94 corridor.

### **Present and Future (No Build) Operating Conditions**

Table 5 shows present and future operating conditions for SR-94. Present conditions reflect 1988 data. The future conditions are based on the San Diego Association of Governments' (SANDAG) Series 7 Regional Population and Employment forecasts for the years 2000 and 2010. Future conditions assume the completion of only those projects in the 1990 STIP.

**TABLE 5  
PRESENT AND FUTURE (NO BUILD) OPERATING CONDITIONS**

<b>SEGMENT/ COUNTY POST MILE</b>	<b>YEAR</b>	<b>NO. LANES/ FACILITY TYPE</b>	<b>ADT</b>	<b>PHV</b>	<b>D/C RATIO</b>	<b>OPERATING LOS</b>
1 SD 1.4 - 3.2	1988	8F	132,000	9,500	1.22	F0
	2000	8F	150,000	10,200	1.31	F1
	2010	8F	163,000	10,700	1.37	F2
2 SD 3.2 - 4.1	1988	8F	144,000	10,300	1.33	F1
	2000	8F	170,000	11,300	1.45	F2
	2010	8F	188,000	12,000	1.53	F3
3 SD 4.1 - 6.2	1988	8F	181,000	12,000	1.45	F2
	2000	8F	190,000	12,200	1.48	F3
	2010	8F	231,000	13,800	1.59	F3
4 SD 6.2 - 9.8	1988	8F	138,000	9,800	1.26	F0
	2000	8F	160,000	10,500	1.34	F1
	2010	8F	814,000	11,400	1.46	F3
5 SD 9.8 - T10.1	1988	8F	126,000	8,900	1.14	F0
	2000	8F	150,000	9,600	1.37	F2
	2010	8F	175,000	10,500	1.79	F3
6 SD T10.1 - R13.3	1988	4F	54,000	4,800	1.24	F0
	2000	4F	67,000	4,800	1.26	F1
	2010	4F	76,000	5,100	1.32	F2
7 SD R13.3 - 14.3	1988	4E	28,000	3,000	1.28	F1
	2000	4E	50,000	3,600	1.34	F1
	2010	4E	59,000	4,000	1.50	F3
8 SD 14.3 - 14.9	1988	4C	30,000	3,200	1.39	F
	2000	4C	45,000	3,200	1.41	F
	2010	4C	70,000	4,700	2.07	F
9 SD 14.9 - 19.8	1988	2C	12,000	-	0.97	E
	2000	2C	20,000	-	1.30	F
	2010	2C	27,000	-	1.54	F
10 SD 19.8 - 4.8	1988	2C	7,000	-	0.52	C
	2000	2C	12,000	-	0.78	D
	2010	2C	18,000	-	1.08	F
11 SD 24.8 - 39.0	1988	2C	2,900	-	0.28	B
	2000	2C	4,700	-	0.45	B
	2010	2C	6,500	-	0.62	C
12 SD 39.0 - 65.4	1988	2C	1,400	-	0.13	B
	2000	2C	2,500	-	0.14	B
	2010	2C	3,500	-	0.33	B

2C = Two lane conventional highway  
 4C = Four lane conventional highway  
 4E = Four lane expressway  
 4F = Four lane freeway  
 8F = Eight lane freeway  
 ADT = Average Daily Traffic  
 D/C = Demand to Capacity  
 LOS = Level of Service  
 PHV = Peak Hour Volume



Average accident data for the three year period from July 1, 1986 to June 30, 1989 is listed below in Table 6. The table includes only segments where actual rates exceed the expected rates on similar facilities by one and one-half times.

**TABLE 6**  
**ACCIDENTS PER MILLION VEHICLE MILES**  
**(FY 1987, 1988, 1989)**

<b>SEGMENT</b>	<b>ACTUAL TOTAL</b>	<b>EXPECTED TOTAL</b>
1	1.59	0.77
2	1.65	0.80

### **Existing and Future (No Build) Deficiencies**

Table 7 shows present and future operating conditions for all segments on SR-94 for purposes of highlighting existing and future deficiencies. The future conditions are based on the SANDAG Series 7 Regional Population and Employment forecasts for the year 2010. Future conditions assume the completion of only those projects in the 1990 STIP. Table 7 does not include improvements listed in the 10 year TSM plan or those included in the Transnet program (the local sales tax funded transportation program). Deficient conditions are defined as LOS's worse than either the Route Concept LOS or LOS "D", and accident rates greater than one and one-half times the expected total.

**TABLE 7  
EXISTING AND FUTURE DEFICIENCIES**

<b>SEGMENT/ COUNTY POST MILE</b>	<b>NO. LANES/ FACILITY TYPE</b>	<b>ADT</b>	<b>D/C RATIO</b>	<b>OPERATING LOS</b>	<b>CONCERN</b>
<b>Current (1988)</b>					
1 SD 1.4 - 3.2	8F	132,000	1.22	F0	Deficient LOS F0/Accidents
2 SD 3.2 - 4.1	8F	144,000	1.33	F1	Deficient LOS F1/Accidents
3 SD 4.1 - 6.2	8F	181,000	1.45	F2	Operating at deficient LOS F2
4 SD 6.2 - 9.8	8F	138,000	1.26	F0	Operating at deficient LOS F0
5 SD 9.8 - T10.1	8F	126,000	1.14	F0	Operating at deficient LOS F0
6 SD T10.1 - R13.3	4F	54,000	1.24	F0	Operating at deficient LOS F0
7 SD R13.3 - 14.3	4E	28,000	1.28	F1	Operating at deficient LOS F1
8 SD 14.3 - 14.9	4C	30,000	1.39	F	Operating at deficient LOS F
9 SD 14.9 - 19.8	2C	12,000	0.97	E	Operating at deficient LOS E
10 SD 19.8 - 24.8	2C	7,000	0.52	C	Not deficient
11 SD 24.8 - 39.0	2C	2,900	0.28	B	Not deficient
12 SD 39.0 - 65.4	2C	1,400	0.13	B	Not deficient
<b>Future (Post 2010-1990 STIP No Build)</b>					
1 SD 1.4 - 3.2	8F	163,000	1.37	F2	Operating at deficient LOS F2
2 SD 3.2 - 4.1	8F	188,000	1.53	F3	Operating at deficient LOS F3
3 SD 4.1 - 6.2	8F	231,000	1.59	F3	Operating at deficient LOS F3
4 SD 6.2 - 9.8	8F	184,000	1.46	F3	Operating at deficient LOS F3
5 SD 9.8 - T10.1	8F	175,000	1.79	F3	Operating at deficient LOS F3
6 SD T10.1 - R13.3	4F	76,000	1.32	F2	Operating at deficient LOS F2
7 SD R13.3 - 14.3	4E	59,000	1.50	F3	Operating at deficient LOS F3
8 SD 14.3 - 14.9	4C	57,000	1.71	F	Operating at deficient LOS F
9 SD 14.9 - 19.8	2C	27,000	1.54	F	Operating at deficient LOS F
10 SD 19.8 - 24.8	2C	18,000	1.08	F	Operating at deficient LOS F
11 SD 24.8 - 39.0	2C	6,500	0.62	C	Not deficient
12 SD 39.0 - 65.4	2C	3,500	0.33	B	Not deficient

2C = Two lane conventional highway  
4C = Four lane conventional highway  
4E = Four lane expressway  
4F = Four lane freeway  
8F = Eight lane freeway  
ADT = Average Daily Traffic  
D/C = Demand to Capacity  
LOS = Level of Service  
STIP = State Transportation Improvement Program

## Land Use

The SANDAG Series 7 Regional Population and Employment Forecast anticipates an increase in population in the San Diego Region from 2.17 million people in 1986 to 3.15 million people in 2010. This represents a 45 percent increase in population. This large increase in population will create a demand for additional housing, employment, and public facilities. Complementary land use and transportation improvements will be required.

SR-94 traverses the heavily populated Mid-City/Southeast San Diego portion of the City of San Diego and portions of the Cities of Lemon Grove and La Mesa. Land use in these areas generally consists of older, established single and multiple family residential

units. East of this area, SR-94 passes through the developing suburban communities of Rancho San Diego and Jamul. East of Jamul, rural land uses predominate along SR-94 easterly to I-8 (P.M. SD 65.4).

Table 8 shows 1989 population, 2010 projected population, and the resultant growth rate for the five statistical areas that SR-94 traverses.

**TABLE 8  
POPULATION GROWTH**

JURISDICTION	1988	2010	PERCENTAGE CHANGE
San Diego	998,600	1,344,900	34.6
Lemon Grove	22,700	27,600	21.5
La Mesa	53,000	58,700	10.8
Spring Valley/Rancho San Diego	73,200	125,800	72.0
Jamul	8,500	13,000	52.9

Source: The San Diego Association of Governments (SANDAG)

Table 9 lists current and future housing, employment and population data for a four mile wide corridor most of the length of SR-94 in San Diego County.

**TABLE 9  
HOUSING, EMPLOYMENT AND POPULATION GROWTH**

COUNTY POST MILE	LOCATION	YEAR	D.U.	PERCENT CHANGE FROM BASE YEAR	EMPLOYMENT	PERCENT CHANGE FROM BASE YEAR	POPULATION	PERCENT CHANGE FROM BASE YEAR
SD 1.4 - 3.2	I-5 to I-15	1985	15,510	-	12,280	-	43,435	-
		2000	17,506	12.9	14,343	16.8	46,102	6.1
		2010	18,551	19.6	16,386	33.4	48,453	11.6
SD 3.2 - 6.2	I-15 to Federal Boulevard	1985	23,505	-	11,283	-	68,092	-
		2000	29,039	19.1	15,396	36.5	78,128	14.7
		2010	32,028	36.3	17,776	57.5	85,124	25.0
SD 6.2 - T10.1	Federal Boulevard to east junction SR-125	1985	18,772	-	12,429	-	50,977	-
		2000	22,427	19.5	15,065	21.2	57,449	12.7
		2010	25,425	35.4	18,735	50.7	64,163	25.9
SD T10.1 - R12.8	East junction SR-125 to Sweetwater Springs Boulevard	1985	15,084	-	9,054	-	43,736	-
		2000	18,922	21.2	11,266	24.4	52,166	19.3
		2010	21,521	42.7	13,402	48.0	58,980	35.5
SD R12.8 - 14.3	Sweetwater Springs Boulevard to Jamacha Road	1985	3,767	-	2,187	-	11,680	-
		2000	7,324	94.4	6,921	216.5	21,162	81.2
		2010	10,096	168.0	8,865	305.3	28,906	147.5
SD 143.3 - 24.8	Jamacha Road to Otay Lakes Road	1985	3,462	-	1,347	-	11,153	-
		2000	5,490	58.6	2,654	97.0	16,361	46.7
		2010	7,668	121.5	3,760	179.1	22,301	100.0
TOTALS		1985	80,100	-	48,500	-	229,073	-
		2000	100,708	25.7	65,645	35.1	271,363	18.5
		2010	115,289	43.9	78,924	62.4	307,927	34.4

D.U. = Dwelling Units

Source: The San Diego Association of Governments (SANDAG)

Additional traffic generators in the SR-94 corridor will significantly increase congestion on area surface streets, freeway interchanges, and the freeway and conventional highway portions of SR-94 itself. Proposed major developments that will generate at least 5,000 trips and significantly impact traffic on SR-94 are shown in Table 10.

**TABLE 10**  
**TRIP INDUCING MAJOR DEVELOPMENT PROJECTS**

SEGMENT	PROPOSED DEVELOPMENT	DWELLING UNITS	SQUARE FOOTAGE/ ACREAGE	TRIPS GENERATED DAILY
4	University Square		20 acres	14,000
4	Lemon Grove Redevelopment Plan		28 acres	21,200
4	North Chollas Residential Development Plan	2,784		21,800
4	Eastridge Specific Plan	520		5,200
6	The Pointe	855	480,000 S.F.	32,000
6	Panorama Ridge/Dictionary Hill	714		8,800
7/8	Rancho San Diego Specific Plan DEIR	6,099		125,400
8/9	Hidden Valley Estates	532		5,300
9	Las Montanas Resort	388		6,300
10	Honey Springs	389	2,000 acres	5,000

S.F. = Square Feet

DEIR = Draft Environmental Impact Report

Source: Caltrans District 11 Transportation Planning Development Review Branch

## ROUTE CONCEPT (2010)

The components of the route concept include State highway, arterial street, and transit improvements. The State highway component is displayed in Table 11. It is primarily composed of two parts: (1) a minimum tolerable LOS for the peak hours; and (2) a description of the physical facility necessary to accommodate that LOS. The 2010 Route Concept LOS is determined by a detailed analysis of each route. Factors that are influential in the selection process include land use, terrain, travel characteristics, relative importance of the route, relationship to other routes, urban or rural areas, functional classification, Average Daily Traffic (ADT), safety, and cost of possible improvements. Additional components of the Route Concept include the future implementation of alternative multimodal, TSM, TDM and air quality improvement tactics. These items are discussed in subsequent sections of this report the 2010 Route Concepts have been approved by District management and reflect a reasonable expectation of accomplishment rather than unattainable aspirations.

In San Diego County, the Route Concept in the urban area is consistent with the provisions of the San Diego County Congestion Management Program (CMP). The CMP will be updated annually to address congestion problems in a coordinated and cooperative manner with various county entities. The elements of the CMP include a TDM and trip reduction element, a transit standards element, and an element defining LOS standards for the highway portion of the regional transportation system.

The Route Concept LOS for SR-94 has been set at LOS "F0" for the existing freeway segments. It has been set at LOS "D" for existing non-freeway segments.

Table 11 shows the specific Route Concept facility type and LOS for each segment of SR-94. The 2010 Operating LOS shown below reflects both mainlanes and auxiliary lanes where appropriate. It is also based on SANDAG Series 7 regional traffic forecasts

which indicate full buildout of the transportation system and assume completion of all proposed State highway, arterial street and transit improvements. The forecast incorporates a vehicle occupancy rate of 1.5 persons per vehicle.

**TABLE 11  
2010 ROUTE CONCEPT**

SEGMENT/ COUNTY POST MILE	NO. LANES/ FACILITY TYPE	ADT	D/C RATIO	OPERATING LOS	CONCEPT LOS	R/U	UTC
1 SD 1.4 - 3.2	8F*	175,000	1.45	F2	F0	U	None
2 SD 3.2 - 4.1	8F*	191,000	1.55	F3	F0	U	None
3 SD 4.1 - 6.2	8F**	188,000	1.35	F1	F0	U	None
4 SD 6.2 - 9.8	8F**	159,000	1.30	F1	F0	U	None
5 SD 9.8 - T10.1	8F+connectors *	227,000	1.27	F1	F0	U	None
6 SD T10.1 - R13.3	6F*	106,000	1.23	F0	F0	U	None
7 SD R13.3 - 14.3	6F	68,000	0.81	D	D	U	None
8 SD 14.3 - 14.9	4F***	48,000	0.87	D	D	U	None
9 SD 14.9 - 19.8	6C	41,000	0.82	D	D	R	172
10 SD 19.8 - 24.8	4C	24,000	0.74	D	D	R	172
11 SD 24.8 - 39.0	2C	6,500	0.62	C	D	R	148
12 SD 39.0 - 65.4	2C	3,500	0.33	B	D	R	148

2C = Two lane conventional highway

4C = Four lane conventional highway

6C = Six lane conventional highway

4F = Four lane freeway

6F = Six lane freeway

8F = Eight lane freeway

ADT = Average Daily Traffic

D/C = Demand to Capacity

HOV = High Occupancy Vehicle

LOS = Level of Service

R = Rural

U = Urban

UTC Ultimate Transportation Corridor

\* Study the addition of two HOV lanes.

\*\* Study the addition of two HOV or two mixed flow lanes.

\*\*\* Proposed freeway extends beyond the urban/rural limit to Millar Ranch Road (P.M. SD 15.5).

NOTE: Widths are in feet.

## CONCEPT RATIONALE

A multimodal approach is necessary in order to provide for the projected increased person trips in the SR-94 corridor. The highway component of the Concept for Segments 1 through 5 includes the provision of additional main lanes and connectors to SR-94 where sufficient right of way is available and where it can be done at a reasonable cost. The Concept also includes a study of the feasibility of constructing HOV lanes within these segments.

Another aspect of the Concept for Segment 1 through 9 is greater utilization of arterial street capacity in the corridor. Expansion and improvement of the existing arterial street system is necessary to enhance its effectiveness. Improvements to the arterial street system can substantially increase mobility within the corridor and reduce peak period demands on the freeway. They can provide a route for short intraregional trips where existing arterials are inadequate or not present, and act as an alternative route for some regional trips. Capacity of existing arterials within the corridor is affected by physical inadequacies, access conflicts, numerous traffic signals, and general traffic congestion. Corridor capacity can be increased by realignment and/or widening, correcting physical inadequacies, minimizing side friction and improving traffic flow of arterials within the corridor. Improvements towards these ends include preferential signal treatment, limitation and separation of left-turn movements, limited driveway and other access controls, and HOV lanes for ridesharing and transit.

Another component of the Route Concept for portions of SR-94 is the East Urban Light (EUL) Rail Line, which currently parallels SR-94 from downtown San Diego to La Mesa. It will help to reduce expected traffic congestion levels in the SR-94 corridor. The line will be expanded to include a full double track facility throughout this corridor, allowing for increased headway's and increased ridership. Daily ridership on the EUL is projected to rise to 25,000 by the year 2000.

For Segment 6, expansion of the existing four lane freeway is necessary to achieve an improved LOS. It is proposed to add two main lanes and study the provision of two HOV lanes, subject to the outcome of the HOV study between I-5 (P.M. SD 1.4) and Avocado Boulevard (P.M. SD R 13.3). When coupled with the installation of additional ramp meters, this facility should approach the Route Concept LOS. Although this segment is not in the District 11 HOV System Plan, consideration of this alternative is justified because of forecasted peak hour volumes that will exceed the threshold outlined in the District HOV Plan.

For Segment 7 and Segment 8, the concept is the construction of a six and four lane freeway, respectively, on new alignment just south and parallel to the existing State Route on Campo Road. Rapid population growth in the vicinity warrants a higher capacity facility in order to provide a nondeficient LOS. The Concept LOS for these segments is "D", and assumes the widening of the existing alignment on Campo Road to six lanes. It also assumes the construction of half diamond interchanges (ramps to and from the west) on the new facility at the SR-54/SR-94 junction (P.M. SD 14.3) and at Singer Lane (P.M. SD 15.2). The configuration of these interchanges on the new freeway alignment will necessitate the continued use of the existing conventional facility between these interchanges for some through traffic moves. In particular, the westbound SR-94 to southbound SR-54 and the northbound SR-54 to eastbound SR-94 moves will continue to be made on the existing conventional facility due to the limitations of the proposed half diamond interchange at SR-54/SR-94. If the design of the SR-54/SR-94 interchange is changed to accommodate these missing moves, the concept facility and concept operating LOS for Segment 8 would be subject to change. In addition, environmental impacts to the Sweetwater River may be substantially greater if a larger facility is constructed in this segment.

The concept for Segments 9 and 10 is to widen the conventional facility to six and four lanes, respectively. The need for the expansion of the facility in these segments is based on small area traffic forecasts developed by the County of San Diego in conjunction with the SANDAG Series 7 population and travel forecast for the year 2010. Expansion of this facility is predicated on the result of appropriate studies regarding the environmental impact of widening.

For Segment 11, SR-94 will operate at an acceptable LOS, however, some curve realignment and widening projects are anticipated within this segment.

For all segments, operational and safety improvements will be implemented as necessary.

In addition, implementation of TSM, TDM, and Air Quality Strategies is necessary and will be discussed in the following sections.

### **Transportation System Management Strategies**

TSM is a strategy whose goal is the accommodation of travel demand on existing transportation facilities without increasing congestion.

The District 11 Long Range Operations Plan (LROP) proposes a strategy to maximize the existing capacity of the major highway corridors in the metropolitan area. The key items in this strategy include ramp metering, Traffic Operations Center (TOC), signal timing and coordination, and HOV facilities. The LROP calls for ramp meters to be installed at 170 additional locations throughout San Diego County. SR-94 is, for the most part, ramp metered between I-5 (P.M. SD 1.4) and the east junction of SR-125 (P.M. SD T10.1) and there are main lane meters at the SR-125 east junction for westbound traffic. Additional ramp meters are planned on the route in the easterly direction between Euclid Avenue (P.M. SD 5.1) and the east junction of SR-125 (P.M. SD T10.1). With the completion of this project, SR-94 will be fully ramp metered between I-5 (P.M. SD 1.4) and the east junction of SR-125 (P.M. SD T10.1). HOV bypass lanes will also be provided on the ramps where feasible. In order to approach the route concept in Segment 6, it may be necessary to provide ramp meters between the east junction of SR-125 (P.M. SD T10.1) and Avocado Boulevard (P.M. SD R13.3).

The TOC proposed in the LROP and currently in operation, should be expanded as part of a complete traffic management plan for San Diego County. It will aid in the rapid identification of accidents and other nonrecurrent freeway congestion and will issue appropriate information to motorists through the use of changeable message signs, highway advisory radio, and possibly by the use of in-vehicle computers.

The LROP recommends that a plan be prepared for the systematic review of all signalized intersections. This plan will include a discussion of signalized local parallel routes.

### **Demand Management Strategies**

TDM is a strategy whose goal is to reduce travel demand during peak period traffic hours. It incorporates a variety of components, including ridesharing, flexible working hours, parking management, developer and employer incentives and requirements, and ordinances. The major TDM emphases shall be directed toward employment and education related freeway travel during the peak periods. Progressive TDM emphases will be oriented toward additional trip generators such as goods movement, local schools, and commercial and recreational travel.

One of SANDAG's TDM program objectives for the San Diego metropolitan area is to increase the average number of persons in each vehicle during the peak periods from the existing 1.15 rate to a 1.5 rate by the year 2010. Another objective is to reduce the percentage of employees commuting alone by automobile during the peak period from the current rate of 80 percent of the labor force to 40 percent by the year 2010.

A number of Transportation Management Associations (TMA's) have been formed to assist in the implementation of TDM strategies. The downtown San Diego TMA is the only existing TMA in the SR-94 corridor.

### **Air Quality**

Since the region has not met State and federal air quality standards, the Air Pollution Control District will develop a new air quality plan. As part of this plan, SANDAG will develop Transportation Control Measures (TCM's). There are two types of TCM's. One type includes ridesharing and vanpool programs, flexible work hours, telecommuting, parking management programs and other TDM type activities. The other type includes HOV system improvements and expansion, traffic signal synchronization on major streets, transit improvements to increase use by commuters and other TSM type actions. Additional tactics will need to be developed to achieve acceptable standards within the required time frame. Potential tactics could include a more stringent inspection and maintenance program, inclusion of Air Quality elements in General Plans, corporate fleet conversion to alternative fuels and market based programs. The San Diego plan will be due in June of 1991, to demonstrate attainment by 1997. SANDAG is the responsible agency for the development of TCM's contained in the plan.

### **OTHER ITEMS**

New methodologies can assist in providing better management of the future transportation system. Advanced technology research is one tool that can be used to improve the efficiency of the future transportation system. The "SMART" Corridor concept will employ a number of technological innovations, including in-vehicle navigation systems, computerized roadway sensors, changeable message signs, and television cameras.

### **ALTERNATIVE ROUTE CONCEPTS CONSIDERED**

The purpose of this section is to document alternative Route Concepts that were



considered. The 1990 Route Concept for the year 2010 is compared with the original 1984 RCR for the year 2005, the 1989 Regional Transportation Plan (RTP), the County of San Diego General Plan Circulation Element, and also with an alternative facility sizing analysis.

In 1984, the original Concepts were set based on the SANDAG Series 6 Population and Traffic Forecasts for the year 2005. Because traffic and population growth along the SR-94 corridor are increasing at a rate greater than the Series 6 projections, the original Route Concepts have been revised to reflect these increases.

Table 12 is comprised of a segment by segment comparison between the 1984 RCR and this current updated RCR.

**TABLE 12  
COMPARISON OF 2005 AND 2010 ROUTE CONCEPTS**

<b>1984 ROUTE CONCEPT FOR 2005</b>		<b>1990 ROUTE CONCEPT FOR 2010</b>	
<b>SEGMENT/ COUNTY POST MILE</b>	<b>NO. LANES/ FACILITY TYPE/ CONCEPT LOS</b>	<b>SEGMENT/ COUNTY POST MILE</b>	<b>NO. LANES/ FACILITY TYPE/ CONCEPT LOS</b>
1A SD 1.4 - 4.1	8F/F	1 SD 1.4 - 3.2	8F <sup>*</sup> /F0
		2 SD 3.2 - 4.1	8F <sup>*</sup> /F0
1B SD 4.1 - 10.1	8F/F	3 SD 4.1 - 6.2	8F <sup>**</sup> /F0
		4 SD 6.2 - 9.8	8F <sup>**</sup> /F0
		5 SD 9.8 - T10.1	8F <sup>*</sup> /F0
2A SD 10.1 - T13.3	6F/D	6 SD T10.1 - R13.3	6F <sup>*</sup> /F0
2B SD T13.3 - 14.9	8F/D	7 SD R13.3 - 14.3	6F/F0
		8 SD 14.3 - 14.9	4F <sup>***</sup> /F0
3A SD 14.9 - 15.3	4F/D	9 SD 14.9 - 19.8	6C/D
3A SD 15.3 - 19.4	4C/D	10 SD 19.8 - 24.8	4C/D
		11 SD 24.8 - 39.0	2C/D
3B SD 19.4 - 65.4	2C/C	12 SD 39.0 - 65.4	2C/D

2C = Two lane conventional highway

4C = Four lane conventional highway

6C = Six lane conventional highway

4F = Four lane freeway

6F = Six lane freeway

8F = Eight lane freeway

HOV = High Occupancy Vehicle

LOS = Level of Service

\* Study the addition of two HOV lanes.

\*\* Study the addition of two HOV or two main lanes.

\*\*\* Proposed freeway extends to P.M. 15.5.

The Route Concept for SR-94 is consistent with the 1989 RTP with the exception of Segment 9. The widening of SR-94 from Millar Ranch Road (P.M. SD 15.5) to Proctor Valley Road (P.M. SD 19.8), provides for a six lane instead of a four lane conventional highway as proposed by the RTP. SANDAG will consider these changes in their 1991 RTP.

The Route Concept and the ultimate facility for SR-94 are consistent with the County of San Diego General Plan Circulation Element, with the exception of Segment 10. However, for Segment 10, we expect the County of San Diego will modify their Circulation Plan to come into agreement with our concept during their next update. While the Concept Facility is generally consistent with the County Circulation Plan, the County right of way widths are not consistent with Caltrans recommended right of way widths. The right of way widths shown in this report are based on Caltrans design standards.

Table 13 identifies the SR-94 segments where, with the initial Concept Facility in place, the 2010 Operating LOS remains at a deficient level. This table illustrates the LOS's that could be achieved by enlarging the mainlane facility beyond the initial Concept Facility size. For those segments the table lists increasingly larger mainlane facility sizes, starting with the initial number of lanes called for in the Route Concept and ending with the number of lanes required to achieve a nondeficient LOS "D". The resultant Operating LOS's are listed to the right of the "Alternative No. of Lanes" column, with the "2010 Operating LOS" and "Concept LOS" highlighted.

The table shows that extremely large facilities, as high as 16 lanes in some segments, would be necessary to reach a "D" LOS. Due to high costs and associated impracticalities, these facility sizes are not proposed as the Route Concept for these segments.

**TABLE 13**  
**LANES REQUIRED TO ACHIEVE ALTERNATIVE LEVELS OF SERVICE**  
**(2010)**

<b>SEGMENT/ COUNTY POST MILE</b>	<b>ALTERNATIVE NO. LANES/ FACILITY TYPE</b>	<b>D/C</b>	<b>OPERATING LOS</b>
1 SD 1.4 - 3.2	8*	1.45	F2 (2010 Operating LOS)
	10	1.16	F0 (Concept LOS)
	12	0.97	E
	14	0.83	D
2 SD 3.2 - 4.1	8*	1.55	F3 (2010 Operating LOS)
	10	1.24	F0 (Concept LOS)
	12	1.03	F0
	14	0.88	D
3 SD 4.1 - 6.2	8**	1.35	F1 (2010 Operating LOS)
	10	1.24	F0 (Concept LOS)
	12	1.03	F0
	14	0.88	D
4 SD 6.2 - 9.8	8**	1.30	F1 (2010 Operating LOS)
	10	1.04	F0 (Concept LOS)
	12	0.86	D
5 SD 9.8 - T10.1	8+connectors*	1.27	F1 (2010 Operating LOS)
	12	1.10	F0 (Concept LOS)
	14	0.94	E
	16	0.82	D
6 SD T10.1 - R13.3	6*	1.23	F0 (Concept LOS)
	8	0.92	E
	10	0.74	C

D/C = Demand to Capacity  
HOV = High Occupancy Vehicle  
LOS = Level of Service

\* Study the addition of two HOV lanes.

\*\* Study the addition of two HOV lanes or two main lanes.

## FACILITY IMPROVEMENTS NECESSARY TO ATTAIN THE ROUTE CONCEPT

In the urban areas it is not always possible to attain the Route Concept solely by the provision of physical improvements to the roadway. Alternative means included in the Concept have been discussed extensively in prior sections. The Route Concept for SR-94 calls for widening where sufficient right of way is available and where it can be achieved at a reasonable cost.

Table 14 displays mainlane facility improvements that are proposed in order to approach or attain the Route Concept. The Demand to Capacity (D/C) ratio and Operating LOS listed assume completion of the proposed improvement.

**TABLE 14**  
**ROUTE CONCEPT FACILITY IMPROVEMENTS**

SEGMENT/ COUNTY POST MILE	LOCATION	IMPROVEMENT DESCRIPTION	D/C	OPERATING LOS	CONCEPT LOS
5 SD 9.8 - R10.1	West junction SR-125 to east junction SR-125	Add connectors	1.27	F1	F0
6 SD T10.1 - R13.3	East junction SR-125 to Avocado Boulevard	Upgrade from 4F to 6F*	1.23	F0	F0
7 SD R13.3 - 14.3	Avocado Boulevard to SR-54	Construct six lane freeway	0.81	D	D
8 SD 14.3 - 14.9	SR-54 to urban/rural limit	Construct four lane freeway**	0.87	D	D
9 SD 14.9 - 19.8	Urban/rural limit to Proctor Valley Road	Upgrade from 2C to 6C	0.82	D	D
10 SD 19.8 - 24.8	Proctor Valley Road to Otay Lakes Road	Upgrade from 2C to 4C	0.74	D	D

2C = Two lane conventional highway  
 4C = Four lane conventional highway  
 6C = Six lane conventional highway  
 4F = Four lane freeway  
 6F = Six lane freeway  
 D/C = Demand to Capacity  
 HOV = High Occupancy Vehicle  
 LOS = Level of Service

\* Study the addition of two HOV lanes.

\*\* Proposed freeway extends beyond the urban/rural limit to Millar Ranch Road (P.M. SD 15.5).

## ULTIMATE TRANSPORTATION CORRIDOR

The Ultimate Transportation Corridor (UTC) describes the long term right of way requirements for a particular segment. The long term needs are determined by Advanced Transportation System Development (ATSD) activities which include investigation and analysis of Community Plans, General Plans, Transportation Plans, Land Use Plans, Environmental Documents, and other planning documents. The intent is to take advantage of or develop opportunities for long term right of way acquisition and to work with local and regional agencies to implement corridor preservation measures.

The UTC for SR-94 is based on Caltrans standards. The UTC proposes the number of lanes, the facility type, and the minimum right of way width in feet for the ultimate facility and does not include additional width necessary for slope or other modifications.

The UTC facility for SR-94 in Segment 9, from the urban/rural limit (P.M. 14.9) to Proctor Valley Road (P.M. SD 19.8), is the same as the Route Concept Facility. The minimum right of way width for this segment is 172 feet. In Segment 10, the UTC is wider than the Route Concept facility. Caltrans planning studies recommend adding two lanes between Proctor Valley Road (P.M. SD 19.8) and Otay Lakes Road (P.M. SD 24.8) to produce an ultimate six lane conventional highway. The minimum right of way width for this facility is 172 feet.

For the remainder of the route beyond Otay Lakes Road, the UTC is a four lane conventional facility with minimum right of way of 148 feet.

## LIST OF SYSTEM PLANNING ACRONYMS

ADT	Average Daily Traffic
APCD	Air Pollution Control District
ATSD	Advanced Transportation System Development
CBD	Central Business District
CMP	Congestion Management Program
CTC	California Transportation Commission
DSMP	District System Management Plan
FAI	Federal Aid Interstate
FAS	Federal Aid Secondary
FAP	Federal Aid Primary
FAU	Federal Aid Urban
HOV	High Occupancy Vehicle
IRRS	Interregional Route System
ISTEA	Intermodal Surface Transportation Efficiency Act
LOS	Level of Service
LROP	Long Range Operations Plan
LRT	Light Rail Transit
MSL	Maintenance Service Level
MTDB	Metropolitan Transit Development Board
PHV	Peak Hour Volume
PM	Post Mile
PR	Project Report
PSR	Project Study Report
PTOC	Primitive Traffic Operations Center
RCR	Route Concept Report
RTP	Regional Transportation Plan
R/W	Right of Way
SANDAG	San Diego Association of Governments
STAA	Surface Transportation Assistance Act
STIP	State Transportation Improvement Program
TASAS	Traffic Accident Surveillance and Analysis System
TCM	Transportation Control Measure
TCR	Transportation Concept Report
TDM	Transportation Demand Management
TDP	Transportation Development Plan
TMA	Transportation Management Association
TMC	Transportation Management Center
TSM	Transportation Systems Management
UTC	Ultimate Transportation Corridor
V/C	Volume to Capacity Ratio

SMART CORRIDOR (Author's Definition) Employs technology to improve the operating efficiency of all the roadways within a corridor in order to reduce congestion

## LEVEL OF SERVICE (LOS) DEFINITIONS

LOS is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A LOS definition generally describes these conditions in terms of such factors as speed, travel time, freedom to maneuver, comfort and convenience, and safety. LOS definitions can generally be categorized as follows:

<b><u>LOS</u></b>	<b><u>D/C</u></b>	<b><u>Congestion/Delay</u></b>	<b><u>Traffic Description</u></b>
<i>(Used for two and four lane freeways and expressways)</i>			
"A"	<.34	None	Free Flow
"B"	0.35-0.52	None	Free to stable flow, light to moderate volumes
"C"	0.53-0.69	None to Minimal	Stable flow, moderate volumes freedom to maneuver noticeably restricted
"D"	0.70-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor
<i>(Used for six lane freeways and expressways)</i>			
"A"	<.39	None	Free Flow
"B"	0.40-0.59	None	Free to stable flow, light to moderate volumes
"C"	0.60-0.74	None to Minimal	Stable flow, moderate volumes freedom to maneuver noticeably restricted
"D"	0.75-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor
<i>(Used for freeways with eight or more lanes)</i>			
"A"	<.42	None	Free Flow
"B"	0.43-0.62	None	Free to stable flow, light to moderate volumes
"C"	0.63-0.79	None to Minimal	Stable flow, moderate volumes freedom to maneuver noticeably restricted
"D"	0.80-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor

*(Used for all freeways and expressways)*

"F <sub>0</sub> "	1.01-1.25	Considerable, 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go
"F <sub>1</sub> "	1.26-1.35	Severe, 1-2 hour delay	Very heavy congestion, very long queues
"F <sub>2</sub> "	1.36-1.45	Very severe, 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods
"F <sub>3</sub> "	> 1.46	Extremely severe, 3+ hours of delay	Gridlock



I approve this Route Concept Report as the guide for development of State Route 94 over the next 20 years.

Submitted By:

Carol Boland  
Carol Boland, Chief  
System Planning Branch

1/28/91  
Date

Recommended By:

Carl R. West  
Carl R. West  
Deputy District Director  
Planning and Public Transportation

1/28/91  
Date

Approved By:

Jesus Garcia  
Jesus Garcia  
District Director

3-20-91  
Date